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COULTER'S WHITEFISH.

In a recent article on *Coregonus coulteri* (COPEIA No. 45), Dr. Kendall overlooks an obscure second record of the occurrence of the species in the Columbia basin (Proc. U. S. Nat. Mus. XXXVI, p. 430). The specimens there referred to were collected by the writer at Diamond Lake, Stevens Co., Wash., in June, 1894. It was observed at the time that kingfishers were catching a slender, silvery fish from near the surface of the lake, and by firing at the birds with a rifle, they were on several occasions made to drop the fish within reach. These were Coulter's whitefish. None was seen in the shallow water near shore, there was no boat at hand, and consequently nothing more was learned of the species. Some of these fishes, measuring 127 millimeters in length, were about as large as the birds could well manage. These specimens and likewise some of those taken by Dr. Eigenmann appear to be fishes of the year, and it is possible that the adults of the species may reach a much larger size. Indeed it is not improbable that the species may be a deep water form of some food value. The Bureau of Fisheries has lately learned of the presence of several undescribed species of whitefish in western waters. Some of these are good food fishes, and it is possible that their range may be profitably extended by artificial means. An

investigation of these species has been started, and it is no doubt worth while that it should be extended.

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SHUFELDT'S NEW MUD MINNOW.

In the July number of *Aquatic Life* Dr. R. W. Shufeldt boldly adds another synonym to *Umbra pygmæa.* One is obliged to read his entire article, which is unnecessarily voluminous, to the end, where the new name *Umbra pygmæa bilineata* is found. As Shufeldt neglects to select a type, a custom almost universal in these days among naturalists, we shall be obliged to help him out by indicating No. 16, 896, U. S. N. M. from "Trib. of Chesapeake Bay" as such. Apparently this new form is suggested chiefly on its supposed color characters. It is alleged to differ in having but 2 wide dark lengthwise broad bands, while in *U. pygmæa* there are ten, a dozen, or more, narrow dark lengthwise lines. On a previous page, however, Shufeldt admits that "the fish changes its coloration to a wonderful degree when placed in alcohol and other preservative fluids," and also that the living fishes vary widely in color. I found that our living mud minnow exhibits great extremes in variety of color, not only such patterns as Shufeldt mentions, but all sorts of intermediate designs. Also some examples may appear nearly uniform blackish, and others grayish or whitish, though I have not yet found an albino. Now these varieties may even occur in the same stream, pool or mud-hole. Some of these forms are doubtless affected by the condition of the water, as in the cedar-stained streams of our coastal regions fishes are always darker, or even nearly black.

Besides the type Dr. Shufeldt mentioned he examined many examples in the United States National Museum from Eastern Maryland, Laurel (Md.), Chain Bridge (D. C.), and Long Island (Lake Pat-

chogue), N. Y. From this one is inclined to consider these as the localities for his new form, though such are not so stated. I have examined and largely collected a very large series of examples from: New Jersey (Batsto R., Wading R., Mantua Creek, Cedar Swamp Creek, Trenton, New Lisbon, Grenloch, Friendship, Sumner, Cape May Court House, Great Sound Creek, Porchtown, Repaupo, Coopers, Millville Lake, Sluice Creek, Burlington Island, Fishing Creek, Elmer, Lake Hopatcong, Upper Goshen Creek, Pancoast Run, Pitman, McPherson's Branch, Brookdale, Alloway, Cedarville, Shepard's Mill, Clementon, Green Creek); Pennsylvania (Bristol, Scott's Creek, Penn Valley, Guinea Creek, Tullytown Brook, Common Creek, Tinicum Island, Moores, Chester, Bridgewater, Torresdale, Holmesburg, Laurel Bend, David's Well, Rocky Woods, Emilie, Oxford Valley, Langhorne, Glen Lake, Woodbourne, Philadelphia, Schuykill R.); Delaware (Rehoboth, Bellevue Creek, Bombay Hook, Newcastle, Delaware City, Brown's Branch, Laurel, Lewes); Maryland (Bacon Hill, Big Bohemia Creek, Elk Neck, Aydelotte Branch, Dike Creek); Virginia (Locustville Branch and lower James River). My examples show the 2 or 3 simple dorsal rays and 12 or 13 branched, rarely 14, and the anal with 4 simple rays and 6 or 7 branched, rarely 5 or 8. The scales vary 28 to 35 in a median lateral series to the caudal base, with 3 to 5 more on the latter. Transversely are 12 to 15 scales between the dorsal and ventral origins, and before the dorsal 23 to 30. The proportions of the head, body-depth, etc., vary greatly, but chiefly with age. The eye was found contained 3-2/5 to 5 times in the head, and the young of course with it larger than the adult. There is absolutely nothing in Shufeldt's exposition of the structural characters not covered by my series.

My copied figure, from Jordan and Evermann, is 7 inches long "which is much larger than the fish

ever grows to be" according to Shufeldt. Now this statement needs further verification, as I have seen and examined an occasional example 6 inches long, and it is quite possible one may even exceed 7 inches. In my experience the average size is from 3 to 4 inches. Further Shufeldt says of the figure, "it gives 38 scales instead of 35, and 12 dorsal rays instead of 13; it has too many anal rays." This is entirely misleading, and the artist who made the figure was probably accurate. In truth the figure shows 3 simple and 10 branched dorsal rays and 2 simple and 6 branched anal rays. One also gathers a false impression that the scales would be 35, but I find variants with 40, and do not doubt they may even exceed this.

These notes were made with the idea of placing before ichthyologists an obscure account of a supposed new form of one of our well-known fishes, as it appears upon comparison with some of the facts as brought out with adequate material.

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SYSTEMATIC NOTE ON LOWER CALIFORNIA LIZARDS.

A collection of reptiles, made in Lower California in 1911 by an expedition under the auspices of the American Museum of Natural History and the United States Bureau of Fisheries (Charles H. Townsend, leader, on the U. S. S. Albatross), reveals some interesting records for this peninsula. Among these *Crotaphytus copeii* Yarrow, 1882 (*Proc. U. S. Nat. Mus.* Vol. 5, p. 441), has not been considered valid, Cope, Van Denburgh and Ruthven all relegating it to the synonymy of *Crotaphytus wislizenii* Baird and Gerard. Stejneger has not expressed an opinion regarding its status, the only mention being a noncommittal sentence in his differentiation of the new short-headed species of the Pacific Region, *Crotaphytus silus* (*N. A. Fauna*, No. 3, p.

105): "Nor is it [*C. silus*] the same as *C. copeii* Yarrow, from which the new form [*C. silus*] differs in the same manner as it does from *C. wislizenii*,"—that is, in being short-headed, while both *C. copeii* and *C. wislizenii* are long-headed. *Crotaphytus* specimens in the American Museum collections from Tiburon Island in the Gulf of California, and Cerros Island on the Pacific side, are distinctly *C. copeii*, agreeing with Yarrow's type from La Paz (a single specimen, No. 12663 in the U. S. Nat. Mus.) in being a longer and relatively larger-headed form than any other species of the *Crotaphytus wislizenii* group known.

A second good species which has been supposed not valid is *Callisaurus crinitus* Cope, 1888 (Amer. Nat., Vol. 30, p. 1049). Cope described this from a single specimen, U. S. Nat. Mus. 14895, type locality Ballenas Bay in central Lower California on the Pacific side. The American Museum collections contain one full-grown specimen from Abreojos Point, the northern point of Ballenas Bay, and seven full-grown specimens from San Bartolome Bay on the Pacific side, one hundred miles north of the type locality. *Callisaurus crinitus* is large in size like *C. ventralis*, and is peculiar in possessing prominent digital fringes, structurally like those in *Uma notata* Baird. These fringes give an additional indication of close relationship between the two genera. It was Cope's opinion when he first described *C. crinitus* that its discovery made a union of *Uma* and *Callisaurus* necessary. It is true that these fringes on the toes were perhaps the strongest single character differentiating *Uma* and *Callisaurus*, but the sum total of differences still remains too great to admit of the union.

Among interesting records in the American Museum material from the Cape Region is *Callisaurus draconoides* Blainville, which has had a history of many years' confusion with *C. ventralis* and of

masquerading under a trinomial, but which is so distinctly different from *C. ventralis* that there could have been no intergradation for many ages past. *Uta thalassina* Cope, another record from the Cape Region, is interesting because of possible differences of opinion regarding its generic rank (*Petrosaurus,* new genus suggested by Boulenger, 1885). The discovery in 1914 of *Uta mearnsi* Stejneger, from the summit of the Coast Range of the Mexican border, really settled the question, as stated by Stejneger at that time (*Proc. U. S. Nat. Mus.,* 1894, p. 369). When we compare this species with the large Cape Region form on the one hand, and with the small typical *Uta* on the other, we find it a close link in size, in scutellation (except for the tail), and even in color pattern. Therefore, *Uta thalassina* must be retained among the *Utas* despite the fact that the scutellation of its tail is unlike that of any other *Uta* known, and more like that of a *Crotaphytus.*

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ANOTHER LONG ISLAND RECORD FOR *AMBYSTOMA JEFFERSONIANUM* (GREEN).

Three specimens of this salamander were found on August 26, 1917, under old boards along the margin of a small, round pond about ¼ mile north of the Hither Plain Life Saving Station at Montauk. All are young, two measuring 2¾″ and one 3½″ in length. Undoubtedly they have developed from larvae of the same season. The largest specimen is heavily marked with bright blue spots of varying size on tail, legs and along the sides of body and head. On the back and underside the spots are more faint and sparse. The ground color is blackish brown. The tail is oval, flattened toward the point. On the smaller specimens the spots are faint and the tail is flatter throughout its length.

The only other Long Island record for *A. jeffersonianum* was obtained at a point about 5 miles east of the present location (see COPEIA No. 8).

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A ONE-LEGGED CRICKET FROG.

On September 23, Cricket Frogs (*Acris gryllus crepitans*), were found abundant along the margins of ponds in the sand dunes between Miller, Indiana and Lake Michigan. The tadpoles of this species were seen in the pond, as were also a few transforming individuals.

One of these Cricket Frogs (head and body 16 mm.), unfortunately not noted until after it had died in a collecting bag, presents a malformation which seems worthy of description. The right leg is absent, and no scar is evident to indicate its recent loss by injury; the skin is normal in both texture and coloration over the area from which the leg should spring. The skin of the abdomen is notably wrinkled toward the missing member. Indeed the whole body posteriorly is twisted toward the right side, so that the left leg, which is of the usual proportions, is forced into a position in which it could fairly effectively perform the normal function of both legs.

The pelvic region, on dissection, shows some interesting features. As just mentioned it is curved toward the right. There is absolutely no trace of a right femur, nor even of the acetabulum and labrum cartilagineum, which are normally well developed in this species. The right face of the pelvis is smooth, and the right arm of the ilium is weak and cartilaginous. The dextral sciatic plexus and nerve are also atrophied.

Whether this monstrosity is the result of a mutation, or of a very early injury can not be stated.

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NOTE ON A ONE-LEGGED FROG.

On October 12, 1915, I caught a young, one-legged pickerel frog (*Rana palustris*) at the border of a lake south of Smithtown, Long Island, N. Y. The head and body of the specimen measured not more than one and one-half inches, and one hind leg (I forgot whether the right or left), was gone completely from the pelvic joint, the skin of the hip showing practically no scar.

This frog lived in a vivarium with several examples of *Ambystoma tigrinum, Hyla andersoni,* other amphibians, and snails, for nine months. At the time of its capture, it had already co-ordinated its asymmetrical organism to such an extent that it could swim straight ahead; by April, 1916, I observed it jumping for food so efficiently as not to suffer by comparison with normal frogs. During the autumn, and again in the spring, we fed it chopped earthworms, house-flies, etc., but for many weeks in the winter it had practically nothing to eat. It took most of its food from tweezers, always grasping it with its jaws rather than capturing by projection of the tongue. It usually accepted only four or five morsels at one feeding.

By May, 1916, it had grown perceptibly, and had assumed very bright coloring, the richest of "copper glaze" fringing its jaws and running along the ridges of its back. At this season it fed altogether on crickets, which were simply set free in the vivarium. The frog, in spite of its lop-sided source of propulsion, leaped with fatal precision for distances up to 12 or 14 inches, and devoured the unfortunate crickets at leisure. The process of swallowing a large victim was almost snake-like in its deliberation.

In July, 1916, I freed the frog at Garden City, Long Island.

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